

The reference to Poe provides a fastener whose primary objective is to provide fast take-up and thereafter to provide slower take-up with greater mechanical advantage for the final tightening. To accomplish this, Poe uses a barrel and sleeve assembly wherein the sleeve has a bore provided with coarse threads to provide fast take-up when used in conjunction with a special bolt having mating coarse threads, and finer external threads that threadably match internal threads of the barrel. The fastening portion of the assembly, i.e. the special bolt, screw or the like, is provided only with coarse threads, and is further of specialized construction having "a gap 54" (Col. 4 line 34) and an "annular actuating shoulder 40" (Col. 4 line 33) that prevents the bolt, screw or the like from properly functioning as a fastener in any other context. This is iterated at Col. 1 lines 13-15 of Poe wherein "fast leads screw designs have less mechanical advantage" and 24-27 "However, an additional drawback occurs when increasing pitch for a common bolt to obtain faster operation because the faster lead threads readily unthread under tension.".

This is in contrast to Applicant's fastener assembly, which is not concerned with or directed to fast take-up, but which provides a fastener that accepts a conventional bolt, screw or the like and locates a shank portion thereof fully through workpieces to be fastened. As such, claim 1, as amended, provides that the threads of all components of Applicants fastener are of

"approximately the same pitch" and the "threaded member" is provided with "a conventional thread/shank interface".

Applicant's claim 2, as amended, provides a composite invention including all the limitations of claim 1 and including the further limitation that the "first fastener member and said second fastener member are attached by an attachment so that said second fastener member initially makes contact with said conventional thread/shank interface, after which additional torque is required to break said attachment to advance said first fastener member past said conventional thread/shank interface". As seen in Applicant's specification at page 5 lines 13-23, such attachment may be "a temporary locking compound". Such structure is not found in the reference to Poe.

Poe teaches a keeper wherein the "leading edge slides along the inner diameter 88 of the inner threads 58 encountering a frictional resistance of a magnitude dictated by the force created by the torsion spring 69 biasing such keeper radially outwardly against such internal threads" (column 7 lines 38-42). It is submitted that such structure of Poe is not similar to, does not function similar to and does not achieve the same result as Applicant's structure, which requires a "temporary attachment...". Poe further states "by varying the level of finishing, a select magnitude of frictional resistance may be developed and thus the desired amount of release torque designed into the fastener. Alternatively, the leading edge may be squared to provide additional

friction between the keeper and the fine lead threads of the barrel. This is especially useful during unthreading to provide a frictional locking feature that inhibits unthreading of the bolt from the assembly. It is preferable to use a finished leading edge in the threading direction and incorporate a rougher leading edge on the unthreading side of the keeper to facilitate both smooth threading and inhibition against unthreading." (Col. 7 lines 48 - 56). Thus, while Poe teaches resistance in an unthreading direction, there is no teaching, suggestion or inference, or any motivation, in Poe to provide "a temporary attachment" in a threading direction as claimed in Applicant's claim 2. In addition, as claim 2 is dependent on a base claim believed allowable, claim 2 should also be found allowable.

Applicants claim 3, as amended, provides a composite invention including all the limitations of claims 1 and 2, and adds the further limitation that the attachment of claim 2 "provides resistance to turning of said second fastener member within said first fastener member in a threading direction so as to tighten said second fastener member against said thread/shank interface". The advantage to this is specified in Applicant's specification at pg. 6 lines 21-23 wherein "This ensures that the sleeve would be tightened against the thread/shank interface of the bolt or other threaded member...". Thus, Applicant's device of claim 3 provides means for positively tightening the second fastener member against the thread/shank interface. This feature is not taught, suggested or inferred in the reference to Poe, which teaches

resistance in an unthreading direction as noted above. As such, there is no teaching of providing resistance to turning in a threading direction. Further, instead of tightening the bolt against the shoulder, Poe goes to lengths to avoid backlash, as seen at col. 8 lines 1-16. This clearly illustrates the fact that there is no positive tightening of the bolt against the collar. Also, as claim 3 is dependent on a base claim believed allowable, claim 3 should also be found allowable.

Claim 5, as amended, provides a composite invention including all the limitations of claim 1 and adds the further limitation that the nut assembly is a "conventionally configured bolt". As noted *supra*, the reference to Poe cannot use a "conventionally configured bolt" due to the requirement of clearance notches 55 for receiving the keeper 41, and a shoulder 40 for bearing against actuator 38. In addition, since claim 5 is dependent on a base claim believed allowable (claim 1), claim 5 should also be allowable.

Independent claim 7, as amended, provides "A fastener for use in conjunction with a conventional threaded bolt-like article having a shank and a conventional thread/shank interface...". As noted *supra*, the reference of Poe is a particularly constructed device requiring a special bolt or the like to interact particularly with other components of the fastener. It is also noted that Applicant's invention does not have similar structure, i.e. 3 discrete parts as opposed to 6 or 7 parts for the device of Poe, of which none are interchangeable.

This difference of structure of Poe dictates differences in function, i.e. a first take-up speed in Poe to initially take up slack and a second take-up speed to tighten the component, as compared to Applicant's device which has a single take-up speed, and a different result, which in Poe is to take up the slack with fewer rotations of the bolt and then tighten the component with greater mechanical advantage as compared to Applicant's device, which is not concerned with a two-stage takeup device and which has a constant mechanical advantage. It is also noted that Applicant's device is simpler and thus much less costly to fabricate, and utilizes a conventional, and thus inexpensive, bolt-like article.

Applicant's claim 8 provides a composite invention including all the limitations of claim 7, and adds the further limitation of "an attachment coupling said fastener member and said cylindrical member together so that after said cylindrical member contacts said shank, additional torque is required to break said attachment so that said fastener member may be advanced over said shank". Such attachment requiring "additional torque to break the attachment so that said fastener may be advanced over said shank" is not taught, suggested or inferred by the reference to Poe, as discussed above with respect to claims 2 and 3. In addition, since claim 8 is dependent on a base claim believed allowable, claim 8 should also be found allowable.

Claim 9 sets forth a composite device including all the limitations of claims 7 and 8, and provides the additional limitation of "resistance to turning of said cylindrical member within said fastener member in a direction to tighten said fastener". As noted above, such a limitation is not taught, suggested or inferred by the reference to Poe. Also, as claim 9 depends from a base claim believed allowable, claim 9 should also be found allowable.

In view of the foregoing, as it is clear that the reference to Poe does not disclose Applicant's invention, the rejection to claims 1 - 3, 5 and 7 - 9 under 35 USC 102(e) is defective. It is respectfully requested that this rejection be withdrawn.

Claims 4, 11 and 12 are rejected under 35 USC 103(a) as being unpatentable over Poe as applied to claims 1 and 2, and further in view of Wallace. The reference to Wallace discloses several compounds that when applied to screw threads, provide some resistance when the parts are assembled, but which provide substantially more resistance to unthreading in shock and vibration environments. However, the reference to Wallace and Poe are independent of one another; there is no suggestion or inference of combining them in the manner suggested by the Examiner. Here, one skilled in the art, given the references to Poe and Wallace, would be led to develop a two-stage take-up device as disclosed by Poe, but as there is already a latching means and a locking means to prevent unthreading in Poe, it is unclear how

the compounds of Wallace would be used, nor would there be any motivation to use the compounds of Poe unless a sealing function is required, which is unrelated to Applicant's invention in this context. In addition, applicant's claim 4 requires "a bonding agent" to positively lock the components together, such a bonding agent not being taught by Wallace. Rather, Wallace teaches "a viscous non-tacky friction coating" (abstract). Thus, the rejection of claim 4 is defective, and should be withdrawn.

Claim 11 sets forth a composite device including all the limitations of claims 7, 8 and 10, and adds the further limitation of "a locking member threadable onto an exterior portion of said cylindrical member...". Here, claim 8 provides the additional limitation to claim 7 of "an attachment coupling said fastener member and said cylindrical member together so that after said cylindrical member contacts said shank, additional torque is required to break said attachment...". As described above, the "attachment" as claimed and disclosed by Applicant, which as described at Pg. 5 lines 13 - 23, may be a "temporary locking compound 3", a "mechanical clip" that also provides "a selected amount of tension between the sleeve and nut so that a predetermined amount of torque must be applied to the nut to effect relative rotation between the sleeve and nut" or "the sleeve may be constructed slightly out-of-round...". Such a construction is not found in the references of Poe or Wallace, taken separately or in combination. Applicants claim 10, as amended, provides the additional limitation to the combination of claims 7 and 8 that the "cylindrical

member extends beyond said fastener member". Such a construction is not evident in the reference to Poe or Wallace. Applicant's claim 11 further provides the limitation to claims 7, 8 and 10 of "a locking member threadable onto an exterior portion of said cylindrical member, and threadably abutable against said fastener member for locking said fastener member and said cylindrical member together". Such construction is not taught, suggested or inferred by the reference to Poe or Wallace.

Applicant's claim 12 provides the additional limitation to the invention defined by claims 7, 8 and 10, as discussed above, and further adds the additional limitation that the "threaded portion of said threaded bolt-like article extends beyond said cylindrical member, with a locking member threadable onto said bolt-like article or other threaded member and threadably abutable against said cylindrical member for locking said fastener member, said cylindrical member and said bolt-like article together". As noted above, such construction is not taught, suggested or inferred by the references of Poe and Wallace, taken singly or in combination. Further, Poe teaches away from such a combination because of the undesirable property of the fast lead threads of his bolt having less mechanical advantage (Col. 1 lines 13 - 15) and that the fast threads readily unthread under tension (Col. 1 lines 23 - 26). As such, the structure of Poe does not teach the limitation of Applicant's claim 12.

From the foregoing, it is apparent that the rejection to claims 4, 11 and 12 under 35 USC 103a is defective, and should be withdrawn.

Claims 6, 13, 19 and 20 are rejected under 35 USC 103(a) as being unpatentable over Poe as applied to claims 1 and 7, and further in view of Lang. The reference to Lang discloses a nut plate wherein a threaded insert is locked in the nut plate by a snap ring, which insert being removable by means of a screwdriver slot incorporated into the insert. Once installed, no rotation of the insert within its receiving base (nut element 14) is possible.

Applicant's claim 6, as amended, defines a composite invention including all the limitations of claim 1 and adds the further limitation of "at least two coplanar members each having an opening therein, said openings being coaxially aligned, with said threaded member extending through said openings so that a shank of said threaded member is disposed within said openings and said conventional thread/shank interface extends beyond said openings, whereby when a said nut assembly is threaded onto said threaded member, tightening of said threaded member on said nut assembly causes said second fastener member to contact said conventional thread/shank interface, with further rotation of said first fastener member causing advancement thereof past said conventional thread/shank interface in order to contact a respective one of said coplanar members, compressing said coplanar members together". Such structure, function and result is not found in the combination

of Poe and Lang as the limitations of claim one are not met, as described above. Also, as claim 6 depends from a base claim believed allowable, claim 6 should also be found allowable.

Applicant's claim 13 provides a composite invention including all the limitations of claims 10, 8 and 7, and provides the additional limitation of "at least two coplanar members each having an opening, each said opening coaxially aligned, with said shank extending through both openings and terminating therebeyond so that when said fastener is threaded onto said threaded bolt-like article, said generally cylindrical member first contacts said shank, with additional torque applied to said fastener member or said bolt-like article breaking said attachment so that said fastener member may be threaded onto said cylindrical member to abut an adjacent said coplanar member". Again, as the limitations of claim 10, 8 and 7 are not met by the combination of Poe and Lang, claim 13 should also be found allowable.

Claim 19 provides a composite invention including all the limitations of claim 1, and adds the further limitation of "said first fastener member is fixedly attached to an adjacent one of said workpieces, with rotation of said threaded member advancing said second fastener member to said conventional thread/shank interface, with further rotation of said threaded member tightening said threaded member and compressing said workpieces together". While Lang shows the workpieces as being fastened together, the limitations of

claim 1 are not met, as described earlier, by the combination of Poe and Lang. In addition, since claim 19 is dependent on a base claim believed allowable, claim 19 should also be found allowable.

Claim 20 provides an invention as defined in claim 7, and adds the further limitation of "said fastener member is affixed to an adjacent said workpiece so that rotation of said threaded bolt-like article tightens said fastener and said bolt-like article against said workpiece". As with claim 19, Lang shows a nutplate affixed to a workpiece, and Poe shows a two-stage fastener, but the combination of the two does not meet the requirements of Applicant's invention as claimed in claim 7. Also, as claim 20 depends from a base claim believed allowable, claim 20 should also be found allowable.

From the foregoing, it should be apparent that the rejections to claims 6, 13, 19 and 20 are defective, and should be withdrawn.

Claim 10 is rejected under 35 USC 103(a) as being unpatentable over Poe, the Examiner stating that "The relative length of the two fastener members is considered a design choice since it is not critical to the function of the assembly". Responsive to this rejection, and to the objection to the drawings, claim 10 is amended herewith so that the cylindrical member "extends beyond said fastener member when said bolt-like article is tightened". This structure is shown in Fig. 4, as originally filed, and should obviate the objection to the

drawings. In response to the rejection to claim 10, the requirement thereof is to positively lock the cylindrical member and fastener member together by a "locking member" that engages the longer portion of the "cylindrical member". As such, the cylindrical member extending beyond the fastener member is critical to the composite invention of claim 11 so that a locking member may be threadably engaged thereto.

As the rejection to claim 10 is defective, it is requested that it be withdrawn.

A new section, the CROSS REFERENCE TO RELATED APPLICATIONS, that was inadvertantly omitted when the application was filed, is added with this amendment.

As all the objections and rejections are believed to be obviated with this amendment, favorable action is respectfully requested. In the event there are outstanding issues, a telephone call is solicited.

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1 1 (currently amended). A nut assembly for joining two or more workpieces
2 together comprising;

3 a first fastener member having a first generally cylindrical inner bore
4 provided with a first set of threads therein,

5 ~~a second fastener member provided with a second set of threads on~~
6 an exterior surface thereof for threadable engagement with said first set of
7 threads, said second fastener member having a second generally cylindrical
8 inner bore provided with a third set of threads therein,

9 said first set of threads, said second set of threads and said third set
10 of threads all being cut in the same direction and being of approximately the
11 same pitch,

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12 (whereby as) a threaded member having a conventional thread/shank
13 interface is threadably advanced into said third set of threads of said second
14 fastener member, said third set of threads of said second fastener member
15 contact said conventional thread/shank interface of said threaded member,
16 with further relative advancement rotation between said first fastener member
17 and said second fastener member causing said first fastener member to be
18 advanced past said conventional thread/shank interface of said threaded
19 member and contact a said workpiece adjacent said nut assembly.

1 2 (currently amended). A nut assembly as set forth in claim 1 wherein said
2 first fastener member and said second fastener member are attached by a
3 temporary ~~an~~ attachment so that said second fastener member initially makes
4 contact with said conventional thread/shank interface, after which additional
5 torque is required to break said attachment to advance said first fastener
6 member past said conventional thread/shank interface.

1 3 (currently amended). A nut assembly as set forth in claim 2 wherein said
2 attachment provides resistance to turning of said second fastener member
3 within said first fastener member in a threading direction so as to tighten said
4 second fastener member against said conventional thread/shank interface.

1 4 (original). A fastener as set forth in claim 2 wherein said attachment is a
2 bonding agent.

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(cont)

1 5 (currently amended). A nut assembly as set forth in claim 1 wherein said
2 threaded member is a conventionally configured bolt.

1 6 (currently amended). A nut assembly as set forth in claim 1 further
2 comprising at least two coplanar members each having an opening therein,
3 said openings being coaxially aligned, with said threaded member extending
4 through said openings so that a shank of said threaded member is disposed
5 within said openings and said conventional thread/shank interface extends

6 beyond said openings, whereby when a said nut assembly is threaded onto said
7 threaded member, tightening of said threaded member ~~bolt~~ on said nut
8 ~~threaded member~~ assembly causes said second fastener member to contact
9 said conventional thread/shank interface, with further rotation of said first
10 fastener member causing advancement thereof past said conventional
11 thread/shank interface in order to contact a respective one of said coplanar
12 members, ~~thereby~~ compressing said coplanar members together.

1 7 (currently amended). A fastener for use in conjunction with a conventional
2 threaded bolt-like article having a shank and a conventional thread/shank
3 interface, ~~or other threaded member having a shank and~~ comprising:

4 a fastener member having a first bore with internal threads therein,

5 a generally cylindrical member having a second bore, with threads
6 disposed in said second bore for threadably engaging threads of said bolt-like
7 article ~~or other threaded member~~, and threads on an outer surface of said
8 cylindrical member for threadably engaging said internal threads of said first
9 fastener member so that when said threads of said bolt-like article ~~or other~~
10 ~~threaded member~~ are threadably advanced into said second bore, said shank
11 engages an end of said threads of said second cylindrical member and blocks
12 further advancement thereof, with further rotation of said bolt-like article
13 advancing said first fastener member ~~advanceable~~ past said shank and
14 tightened ~~tightenable~~ against a workpiece.

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(cont)

1 8 (original). A fastener as set forth in claim 7 further comprising an
2 attachment coupling said fastener member and said cylindrical member
3 together so that after said cylindrical member contacts said shank, additional
4 torque is required to break said attachment so that said fastener member may
5 be advanced over said shank.

1 9 (currently amended). A fastener as set forth in claim 8 wherein said
2 attachment provides resistance to turning of said cylindrical member within
3 said fastener member in a direction to tighten said fastener.

1 10 (currently amended). A fastener as set forth in claim 8 wherein said
2 cylindrical member extends beyond said fastener member when said bolt-like
3 article is tightened ~~is longer than said fastener member~~.

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(cont)

1 11 (original). A fastener as set forth in claim 10 further comprising a locking
2 member threadable onto an exterior portion of said cylindrical member, and
3 threadably abutable against said fastener member for locking said fastener
4 member and said cylindrical member together.

1 12 (currently amended). A fastener as set forth in claim 10 wherein a threaded
2 portion of said threaded bolt-like article ~~or other threaded member~~ extends
3 beyond said cylindrical member, with a locking member threadable onto said
4 bolt-like article ~~or other threaded member~~ and threadably abutable against

5 said cylindrical member for locking said fastener member, said cylindrical
6 member and said bolt-like article ~~or other threaded member~~ together.

1 13 (currently amended). A fastener as set forth in claim 10 wherein said
2 workpiece further comprises at least two coplanar members each having an
3 opening, each said opening coaxially aligned, with said shank extending
4 through both openings and terminating therebeyond so that when said fastener
5 is threaded onto said threaded bolt-like article ~~or other threaded member~~, said
6 generally cylindrical member first contacts said shank, with additional torque
7 applied to said fastener member or said bolt-like article ~~threaded bolt or other~~
8 ~~threaded member~~ breaking said attachment so that said fastener member may
9 be threaded onto said cylindrical member to abut an adjacent said coplanar
10 member.

B.
(cont) 1 14 (withdrawn). A method for fastening adjoining members wherein a shank of
2 a threaded article passes slightly beyond said adjoining members comprising
3 the steps of:

4 1) threadably positioning a sleeve having exterior threads and interior
5 threads within a threaded bore of a fastening member,

6 2) threadably advancing said sleeve onto said article until said sleeve
7 abuts a thread/shank interface of said threaded article, halting advancement
8 of said sleeve onto said article,

9 3) continuing to threadably advance said fastening member on said

10 sleeve until said fastening member is sufficiently tightened against an adjacent
11 one of said adjoining members.

1 15 (withdrawn). A method as set forth in claim 14 further comprising the step
2 of releasably attaching said fastening member and said sleeve together.

1 16 (withdrawn). A method as set forth in claim 15 further comprising the step
2 of constructing said sleeve of a length longer than said fastening member.

1 17 (withdrawn). A method as set forth in claim 16 further comprising the step
2 of threading a locking nut onto said sleeve in abutting relation with said
3 fastening member to lock said sleeve, said fastening member and said
4 adjoining members together.

B.
(cont) 1 18 (withdrawn). A method as set forth in claim 16 further comprising
2 threading a locking nut onto threads of said threaded article in abutting
3 relation against said sleeve.

1 19 (currently amended). A nut assembly as set forth in claim 1 wherein said
2 first fastener member is fixedly attached to an adjacent one of said workpieces,
3 with rotation of said threaded member advancing said second fastener member
4 to said conventional thread/shank interface, with further rotation of said

5 threaded member tightening said second fastener member ~~threaded member~~
6 and compressing said workpieces together.

1 20 (currently amended). A fastener as set forth in claim 7 wherein said
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(cont'd) 2 fastener member is affixed to an adjacent said workpiece so that rotation of
3 said threaded bolt-like article tightens said fastener and ~~said~~ bolt-like article
4 against said workpiece.

CROSS REFERENCE TO RELATED APPLICATIONS

This application claims the benefit of provisional application number

32 60/267,289, filed 02/08/2001.
